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- ☐ L1 (4,600,919|4,747,052|4,835,712|4,855,934|4,901,064|5,124,914|5,163,126|5,371,778|5,611.  
*DB=PGPB,USPT; PLUR=YES; OP=ADJ*
- ☐ L2 (4,600,919|4,747,052|4,835,712|4,855,934|4,901,064|5,124,914|5,163,126|5,371,778|5,611.
- ☐ L3 (4,600,919|4,747,052|4,835,712|4,855,934|4,901,064|5,124,914|5,163,126|5,371,778|5,611.
- ☐ L4 L2
- ☐ L5 L2 and mesh\$4
- ☐ L6 L5 and mesh\$4 and polygon\$4
- ☐ L7 L5 and mesh\$4 and polygon\$4 and bones
- ☐ L8 L5 and mesh\$4 and polygon\$4 and bones and vert\$5
- ☐ L9 L5 and mesh\$4 and polygon\$4 and bones and vert\$5 and resol\$6
- ☐ L10 20010026278
- ☐ L11 (20020101421|20010026278)
- ☐ L12 345/\$.ccls. and mesh\$4 and polygon\$4 and bones and vert\$5 and resol\$6
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- ☐ L14 345/\$.ccls. and mesh\$4 same polygon\$4 same bones same vert\$5 same resol\$6 same reduc\$6
- ☐ L15 mesh\$4 same polygon\$4 same bones same vert\$5 same resol\$6 same reduc\$6
- ☐ L16 mesh\$4 same polygon\$4 same bones same reduc\$6
- ☐ L17 mesh\$4 same polygon\$4 and bones near3 reduc\$6
- ☐ L18 (20020101421|20010026278)
- ☐ L19 (4,600,919|4,747,052|4,835,712|4,855,934|4,901,064|5,124,914|5,163,126|5,371,778|5,611.
- ☐ L20 119 and bones same reduc\$6
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- ☐ L22 345/\$.ccls. and bones same reduc\$6
- ☐ L23 345/\$.ccls. and bones near3 reduc\$6

END OF SEARCH HISTORY

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	52	(4,600,919 4,747,052 4,835,712 4,855,934 4,901,064 5,124,914 5,163,126 5,371,778 5,611,030 5,731,819 5,757,321 5,786,822 5,805,782 5,809,219 5,812,141 5,847,712 5,894,308 5,929,860 5,933,148 5,949,969 5,966,133 5,966,134 5,974,423 6,054,999 6,057,859 6,078,331 6,115,050 6,175,655 6,191,787 6,191,796 6,198,486 6,201,549 6,208,347 6,219,070 6,239,808 6,252,608 6,262,737 6,262,739 6,292,192 6,317,125 6,337,880 6,388,670 6,405,071 6,437,782 6,478,680 6,559,848 6,593,924 6,593,927 6,608,627 6,608,628 20010026278 20020101421).pn.	US-PGPU B; USPAT	OR	ON	2005/02/10 12:54
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L3	4	11 and mesh\$4 and polygon\$4 and bones and vert\$5 and resol\$6	US-PGPU B; USPAT	OR	ON	2005/02/10 13:49
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L6	534	"345"/\$.ccls. and (mesh\$4 near3 (polygon\$4 or skin or skelet\$4 or bones))	US-PGPU B; USPAT	OR	ON	2005/02/10 13:51
L7	142	345/420,473.ccls. and (mesh\$4 near3 (polygon\$4 or skin or skelet\$4 or bones))	US-PGPU B; USPAT	OR	ON	2005/02/10 13:52
L8	255	345/419,420,473.ccls. and (mesh\$4 near3 (polygon\$4 or skin or skelet\$4 or bones))	US-PGPU B; USPAT	OR	ON	2005/02/10 13:52

L9	17	345/419,420,473.ccls. and ((mesh\$4 near3 polygon\$4) same (bones or skelet\$4 or skelet\$4))	US-PGPU B; USPAT	OR	ON	2005/02/10 14:05
L10	2	345/419,420,473.ccls. and (((mesh\$4 near3 polygon\$4) same (bones or skelet\$4 or skelet\$4))) same resol\$6	US-PGPU B; USPAT	OR	ON	2005/02/10 14:33
L11	5	(((mesh\$4 near3 polygon\$4) same (bones or skelet\$4 or skelet\$4))) same resol\$6	US-PGPU B; USPAT	OR	ON	2005/02/10 14:32
L12	31	(((mesh\$4 near3 polygon\$4) same (bones or skelet\$4 or skelet\$4)))	US-PGPU B; USPAT	OR	ON	2005/02/10 14:08
L13	66	(((mesh\$4 near3 polygon\$4) and (bones or skelet\$4 or skelet\$4))) and resol\$6	US-PGPU B; USPAT	OR	ON	2005/02/10 14:32
L14	36	345/419,420,473.ccls. and (((mesh\$4 near3 polygon\$4) and (bones or skelet\$4 or skelet\$4))) and resol\$6	US-PGPU B; USPAT	OR	ON	2005/02/10 14:36
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L16	36	345/419,420,473.ccls. and (((mesh\$4 near3 polygon\$4) and (bones or skelet\$4 or skelet\$4))) and resol\$6	US-PGPU B; USPAT	OR	ON	2005/02/10 14:36


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Best 200 shown

 Relevance scale ☐ ☐ ☐ ☐ ☐

### 1 [Decimation of triangle meshes](#)

William J. Schroeder, Jonathan A. Zarge, William E. Lorensen

 July 1992 **ACM SIGGRAPH Computer Graphics , Proceedings of the 19th annual conference on Computer graphics and interactive techniques**, Volume 26 Issue 2

 Full text available: [pdf\(8.02 MB\)](#)

 Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

**Keywords:** computer graphics, geometric modeling, medical imaging, terrain modeling, volume modeling

### 2 [Mesh reduction with error control](#)

Reinhard Klein, Gunther Liebich, Wolfgang Straßer

 October 1996 **Proceedings of the 7th conference on Visualization '96**

 Full text available: [pdf\(863.70 KB\)](#)

 Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

[Publisher Site](#)

### 3 [Session 1: bodies: An automatic modeling of human bodies from sizing parameters](#)

Hyewon Seo, Nadia Magnenat-Thalmann

 April 2003 **Proceedings of the 2003 symposium on Interactive 3D graphics**

 Full text available: [pdf\(3.39 MB\)](#)

 Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#)

In this paper, we present an automatic, runtime modeler for modeling realistic, animatable human bodies. A user can generate a new model or modify an existing one simply by inputting a number of sizing parameters. We approach the problem by forming deformation functions that are devoted to the generation of appropriate shape and proportion of the body geometry by taking the parameters as input. Starting from a number of 3D scanned data of human body models as examples, we derive these functions b ...

**Keywords:** 3D scan data, PCA, examples, human body modeling, interpolation, sizing parameters

### Hybrid meshes: multiresolution using regular and irregular refinement

Igor Guskov, Andrei Khodakovsky, Peter Schröder, Wim Sweldens

June 2002 **Proceedings of the eighteenth annual symposium on Computational geometry**

Full text available:  [pdf\(21.21 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

A hybrid mesh is a multiresolution surface representation that combines advantages from regular and irregular meshes. Irregular operations allow a hybrid mesh to change topology throughout the hierarchy and approximate detailed features at multiple scales. A preponderance of regular refinements allows for efficient data-structures and processing algorithms. We provide a user driven procedure for creating a hybrid mesh from scanned geometry and present a progressive hybrid mesh compression algorithm ...

**Keywords:** compression algorithms, curves & surfaces, geometric modeling, level of detail algorithms, polygonal modeling, remeshing

### 5 Interactive skeleton-driven dynamic deformations

Steve Capell, Seth Green, Brian Curless, Tom Duchamp, Zoran Popović

July 2002 **ACM Transactions on Graphics (TOG) , Proceedings of the 29th annual conference on Computer graphics and interactive techniques**, Volume 21 Issue 3

Full text available:  [pdf\(7.38 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)


This paper presents a framework for the skeleton-driven animation of elastically deformable characters. A character is embedded in a coarse volumetric control lattice, which provides the structure needed to apply the finite element method. To incorporate skeletal controls, we introduce line constraints along the bones of simple skeletons. The bones are made to coincide with edges of the control lattice, which enables us to apply the constraints efficiently using algebraic methods. To accelerate ...

**Keywords:** animation, deformation, physically-based animation, physically-based modeling

### 6 Texture mapping 3D models of real-world scenes

Frederick M. Weinhaus, Venkat Devarajan

December 1997 **ACM Computing Surveys (CSUR)**, Volume 29 Issue 4

Full text available:  [pdf\(1.98 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#), [review](#)


Texture mapping has become a popular tool in the computer graphics industry in the last few years because it is an easy way to achieve a high degree of realism in computer-generated imagery with very little effort. Over the last decade, texture-mapping techniques have advanced to the point where it is possible to generate real-time perspective simulations of real-world areas by texture mapping every object surface with texture from photographic images of these real-world areas. The technique ...

**Keywords:** anti-aliasing, height field, homogeneous coordinates, image perspective transformation, image warping, multiresolution data, perspective projection, polygons, ray tracing, real-time scene generation, rectification, registration, texture mapping, visual simulators, voxels

### 7 Robust epsilon visibility

Florent Duguet, George Drettakis

July 2002 **ACM Transactions on Graphics (TOG) , Proceedings of the 29th annual**

**conference on Computer graphics and interactive techniques**, Volume 21 Issue 3Full text available:  [pdf\(4.33 MB\)](#)Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Analytic visibility algorithms, for example methods which compute a subdivided mesh to represent shadows, are notoriously unrobust and hard to use in practice. We present a new method based on a generalized definition of extremal stabbing lines, which are the extremities of shadow boundaries. We treat scenes containing multiple edges or vertices in degenerate configurations, (e.g., collinear or coplanar). We introduce a robust  $\epsilon$  method to determine whether each generalized extremal stabb ...

**Keywords:** 3D visibility, epsilon visibility, illumination, robust visibility predicates, shadow algorithms

8 Sort-last parallel rendering: Parallel rendering with k-way replication

Rudrajit Samanta, Thomas Funkhouser, Kai Li


October 2001 **Proceedings of the IEEE 2001 symposium on parallel and large-data visualization and graphics**Full text available:  [pdf\(587.04 KB\)](#)Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

With the recent advances in commodity graphics hardware performance, PC clusters have become an attractive alternative to traditional high-end graphics workstations. The main challenge is to develop parallel rendering algorithms that work well within the memory constraints and communication limitations of a networked cluster. Previous systems have required the entire 3D scene to be replicated in memory on every PC. While this approach can take advantage of view-dependent load balancing algorithm ...

**Keywords:** Parallel rendering, cluster computing, computer graphics systems, interactive visualization

9 Approximation & refinement: Dynamic remeshing and applications

J. Vorsatz, Ch. Rössl, H.-P. Seidel

June 2003 **Proceedings of the eighth ACM symposium on Solid modeling and applications**Full text available:  [pdf\(1.53 MB\)](#)Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Triangle meshes are a flexible and generally accepted boundary representation for complex geometric shapes. In addition to their geometric qualities or topological simplicity, intrinsic qualities such as the shape of the triangles, their distribution on the surface and the connectivity are essential for many algorithms working on them. In this paper we present a flexible and efficient remeshing framework that improves these *intrinsic* properties while keeping the mesh geometrically close t ...

**Keywords:** dynamic meshes, multiresolution modeling, remeshing

10 Fast and memory efficient polygonal simplification

Peter Lindstrom, Greg Turk

October 1998 **Proceedings of the conference on Visualization '98**Full text available:  [pdf\(1.46 MB\)](#) [Publisher Site](#)Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

11 Bicubic subdivision-surface wavelets for large-scale isosurface representation and visualization

Martin Bertram, Mark A. Duchaineau, Bernd Hamann, Kenneth I. Joy  
October 2000 **Proceedings of the conference on Visualization '00**

Full text available:  [pdf\(3.17 MB\)](#) Additional Information: [full citation](#), [citations](#), [index terms](#)

**Keywords:** compression algorithms, geometric modeling, iso-surface, multiresolution method, wavelets

12 A stateless client for progressive view-dependent transmission

Richard Southern, Simon Perkins, Barry Steyn, Alan Muller, Patrick Marais, Edwin Blake  
February 2001 **Proceedings of the sixth international conference on 3D Web technology**

Full text available:  [pdf\(658.53 KB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

**Keywords:** Java 3D, level of detail, triangle mesh simplification, view dependent transmission

13 Surface simplification using quadric error metrics



Michael Garland, Paul S. Heckbert  
August 1997 **Proceedings of the 24th annual conference on Computer graphics and interactive techniques**

Full text available:  [pdf\(759.09 KB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

**Keywords:** level of detail, multiresolution modeling, non-manifold, pair contraction, surface simplification

14 Multiresolution tetrahedral framework for visualizing regular volume data

Yong Zhou, Baoquan Chen, Arie Kaufman  
October 1997 **Proceedings of the 8th conference on Visualization '97**

Full text available:  [pdf\(1.22 MB\)](#)  [Publisher Site](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

**Keywords:** isosurface extraction, level of detail, multiresolution volume, polygon simplification, volume subdivision, volume visualization

15 Combining hierarchical radiosity and discontinuity meshing

Dani Lischinski, Filippo Tampieri, Donald P. Greenberg  
September 1993 **Proceedings of the 20th annual conference on Computer graphics and interactive techniques**

Full text available:  [pdf\(543.28 KB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)


**Keywords:** Mach bands, diffuse reflector, discontinuity meshing, global illumination,

hierarchical radiosity, photorealism, quadratic interpolation, radiance function, radiosity, reconstruction, shadows, view-independence

**16 Anatomy-based modeling of the human musculature**

Ferdi Scheepers, Richard E. Parent, Wayne E. Carlson, Stephen F. May

August 1997 **Proceedings of the 24th annual conference on Computer graphics and interactive techniques**

Full text available:  pdf(1.48 MB)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

**Keywords:** articulated models, bones, deformations, human figure animation, muscles, procedural modeling, tendons

**17 The ellipsoidal skeleton in medical applications**

Frederic Banégas, Marc Jaeger, Dominique Michelucci, M. Roelens

May 2001 **Proceedings of the sixth ACM symposium on Solid modeling and applications**

Full text available:  pdf(870.73 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Rough 3D data images obtained by computed tomography or magnetic resonance imagery are inadequate: this paper proposes a high-level data structure called ellipsoidal skeleton. It is based on a tree of best partitions of the points set and features data compression, multi-level representation capabilities, surface reconstruction, interactive visualization, relevant parameters extraction, automatic matching and recognition.

**18 Reconstruction and representation of 3D objects with radial basis functions**

J. C. Carr, R. K. Beatson, J. B. Cherrie, T. J. Mitchell, W. R. Fright, B. C. McCallum, T. R. Evans

August 2001 **Proceedings of the 28th annual conference on Computer graphics and interactive techniques**

Full text available:  pdf(4.18 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

We use polyharmonic Radial Basis Functions (RBFs) to reconstruct smooth, manifold surfaces from point-cloud data and to repair incomplete meshes. An object's surface is defined implicitly as the zero set of an RBF fitted to the given surface data. Fast methods for fitting and evaluating RBFs allow us to model large data sets, consisting of millions of surface points, by a single RBF — previously an impossible task. A greedy algorithm in the fitting process reduces the number of RBF cent ...

**Keywords:** RBF, Radial Basis Function, geometry compression, mesh repair, point-cloud surfacing, solid modeling, surface reconstruction, variational implicit surfaces

**19 Knowledge and representation: Acquisition, representation, query and analysis of spatial data: a demonstration 3D digital library**

Jeremy Rowe, Anshuman Razdan, Arleyn Simon

May 2003 **Proceedings of the 3rd ACM/IEEE-CS joint conference on Digital libraries**

Full text available:  pdf(7.27 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

The increasing power of techniques to model complex geometry and extract meaning from 3D information create complex data that must be described, stored, and displayed to be useful to researchers. Responding to the limitations of two-dimensional (2D) data




representations perceived by discipline scientists, the Partnership for Research in Spatial Modeling (PRISM) project at Arizona State University (ASU) developed modeling and analytic tools that raise the level of abstraction and add semantic val ...

**Keywords:** WWW Applications, digital library, geometric modeling, image databases, information visualization, physically based modeling, scientific visualization, shape recognition

## 20 Reanimating the dead: reconstruction of expressive faces from skull data

Kolja Kähler, Jörg Haber, Hans-Peter Seidel

July 2003 **ACM Transactions on Graphics (TOG)**, Volume 22 Issue 3

Full text available:  pdf(7.35 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Facial reconstruction for postmortem identification of humans from their skeletal remains is a challenging and fascinating part of forensic art. The former look of a face can be approximated by predicting and modeling the layers of tissue on the skull. This work is as of today carried out solely by physical sculpting with clay, where experienced artists invest up to hundreds of hours to craft a reconstructed face model. Remarkably, one of the most popular tissue reconstruction methods bears many ...

**Keywords:** face reconstruction, facial modeling, forensic art

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**181** [Real-time rendering: Interactive rendering of suggestive contours with temporal coherence](#)

Doug DeCarlo, Adam Finkelstein, Szymon Rusinkiewicz

June 2004 **Proceedings of the 3rd international symposium on Non-photorealistic animati rendering**

Full text available: [pdf\(382.84 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#)

Line drawings can convey shape using remarkably minimal visual content. Suggestive contours, lines drawn at certain types of view-dependent surface inflections, were proposed recently as a way of improving the effectiveness of computer-generated line drawings. This paper extends previous work on static suggestive contours to dynamic and real-time settings. We analyze movement of suggestive contours with respect to changes in viewpoint, and offer techniques for improving the quality of .

**Keywords:** contours, differential geometry, graphics hardware, line drawings, non-photorealistic rendering, silhouettes

**182** [Session P12: approximation and compression: Smooth approximation and rendering of large scattered data sets](#)

Jörg Haber, Frank Zeilfelder, Oleg Davydov, Hans Peter Seidel

October 2001 **Proceedings of the conference on Visualization '01**

Full text available: [pdf\(4.62 MB\)](#) [Publisher Site](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index term](#)


We present an efficient method to automatically compute a smooth approximation of large functions on scattered data sets given over arbitrarily shaped planar domains. Our approach is based on the construction of a  $C^1$ -continuous bivariate cubic spline and our method offers optimal approximation. Both local variation and nonuniform distribution of the data are taken into account by using local polynomial least squares approximations of varying degree. Since we only need to so ...

**Keywords:** data compression, least squares approximation, scattered data approximation, terrain visualization

**183** [Session P16: isosurfaces: Volume warping for adaptive isosurface extraction](#)

Laurent Balmelli, Christopher J. Morris, Gabriel Taubin, Fausto Bernardini

October 2002 **Proceedings of the conference on Visualization '02**

Full text available:  pdf(8.04 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)


Polygonal approximations of isosurfaces extracted from uniformly sampled volumes are increasing due to the availability of higher resolution imaging techniques. The large number of primitives represented hinders the interactive exploration of the dataset. Though many solutions have been proposed to this problem, many require the creation of isosurfaces at multiple resolutions or the additional data structures, often hierarchical, to represent the volume. We propose a technique fo

**Keywords:** adaptive isosurface extraction, adaptive tessellation, isosurfaces, volume warping

**184** Reconstruction and triangulation: Dynamic triangulation of variational implicit surfaces using incremental Delaunay tetrahedralization

B. Crespin

October 2002 **Proceedings of the 2002 IEEE symposium on Volume visualization and graphi**

Full text available:  pdf(1.37 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)


In this paper, we present a novel method to triangulate variational implicit surfaces. The core of algorithm is an incremental Delaunay tetrahedralization of the constraint points defining the surface. The surface can be refined over time by adding new points around the surface as needed. Each tetrahedron that crosses the surface can then be triangulated to locally approximate the surface. This method allows getting several meshes of the same shape at different resolutions, which can be updated dynam

**Keywords:** geometric modelling, iso-surface extraction

**185** Session 1: Provably good surface sampling and approximation

J. D. Boissonnat, S. Oudot

June 2003 **Proceedings of the Eurographics/ACM SIGGRAPH symposium on Geometry pro**

Full text available:  pdf(3.64 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index term](#)

We present an algorithm for meshing surfaces that is a simple adaptation of a greedy "farthest point" technique proposed by Chew. Given a surface  $S$ , it progressively adds points on  $S$  and updates the 2D Delaunay triangulation of the points. The method is very simple and works in 3D space without requiring to parameterize the surface. Taking advantage of recent results on the restricted Delaunay triangulation, we prove that the algorithm can generate good samples on  $S$  as  $w \rightarrow \infty$ .

**186** Session P1: medical visualization: Direct surface extraction from 3D freehand ultrasound in

Youwei Zhang, Robert Rohling, Dinesh K. Pai

October 2002 **Proceedings of the conference on Visualization '02**

Full text available:  pdf(1.10 MB)

Additional Information: [full citation](#), [abstract](#), [references](#)

This paper presents a new technique for the extraction of surfaces from 3D ultrasound data. Surface extraction from ultrasound data is challenging for a number of reasons including noise and artifact images and non-uniform data sampling. A method is proposed to fit an approximating radial basis function to the group of data samples. An explicit surface is then obtained by iso-surfacing the function. In most previous 3D ultrasound research, a pre-processing step is taken to interpolate the data.

**Keywords:** 3D freehand ultrasound, direct surface extraction, isosurface, radial basis functions, ultrasound, unstructured data

**187** A skeletal-based solid editor

Robert Blanding, Cole Brooking, Mark Ganter, Duane Storti

June 1999 **Proceedings of the fifth ACM symposium on Solid modeling and applications**

Full text available:  pdf(1.41 MB)


Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

**Keywords:** modeling packages, skeletons, solid representations

**188** Session 5: Global conformal surface parameterization

Xianfeng Gu, Shing-Tung Yau

June 2003 **Proceedings of the Eurographics/ACM SIGGRAPH symposium on Geometry pro**

Full text available:  pdf(8.42 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

We solve the problem of computing global conformal parameterizations for surfaces with nontrivial topologies. The parameterization is global in the sense that it preserves the conformality everywhere except for a few points, and has no boundary of discontinuity. We analyze the structure of the space of global conformal parameterizations of a given surface and find all possible solutions by constructing a basis of the underlying linear solution space. This space has a natural structure solely ...

**189** Interactive multi-resolution modeling on arbitrary meshes

Leif Kobbelt, Swen Campagna, Jens Vorsatz, Hans-Peter Seidel

July 1998 **Proceedings of the 25th annual conference on Computer graphics and interactive techniques**



Full text available:  pdf(315.53 KB)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

**190** A signal processing approach to fair surface design

Gabriel Taubin

September 1995 **Proceedings of the 22nd annual conference on Computer graphics and interactive techniques**

Full text available:  pdf(2.66 MB)  ps  
(6.49 MB)


Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

**Keywords:** graphics

**191** Invited talks: A framework for facial surgery simulation

R. M. Koch, S. H. M. Roth, M. H. Gross, A. P. Zimmermann, H. F. Sailer

April 2002 **Proceedings of the 18th spring conference on Computer graphics**

Full text available:  pdf(1.51 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

The accurate prediction of the post-surgical facial shape is of paramount importance for surgical planning in facial surgery. In this paper we present a framework for facial surgery simulation which is based on volumetric finite element modeling. We contrast conventional procedures for surgical planning against a system by accompanying a patient during the entire process of planning, medical treatment and simulation. In various preprocessing steps a 3D physically based facial model is reconstructed ...

**Keywords:** data reconstruction, facial modeling, facial surgery simulation, finite element methods

**192** Partitioning and ordering large radiosity computations

Seth Teller, Celeste Fowler, Thomas Funkhouser, Pat Hanrahan

July 1994 **Proceedings of the 21st annual conference on Computer graphics and interactive techniques**

Full text available:  pdf(1.39 MB)  ps

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

(26.66 MB)

We describe a system that computes radiosity solutions for polygonal environments much larger be stored in main memory. The solution is stored in and retrieved from a database as the computation proceeds. Our system is based on two ideas: the use of visibility oracles to find source and block surfaces potentially visible to a receiving surface; and the use of hierarchical techniques to represent interactions between large surfaces efficiently, and to represent the computed radiosity ...

**Keywords:** equilibrium methods, multigriding, spatial subdivision

**193 Rendering I: A feasibility test for perceptually adaptive level of detail rendering on desktop systems**

Derrick Parkhurst, Ernst Niebur

August 2004 **Proceedings of the 1st Symposium on Applied perception in graphics and visualization**

Full text available:  pdf(433.75 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Level of detail (LOD) rendering techniques reduce the geometric complexity of 3D models, sacrificing visual rendering quality in order to increase frame rendering rates. Perceptually adaptive LOD rendering techniques take into account the characteristics of the human visual system to minimize visible artifacts attributable to the reduced LOD. While these techniques have been previously examined in the context of high-performance rendering systems, it is not clear whether the benefits will necessarily ...

**Keywords:** gaze-contingent, velocity-dependent, visual search

**194 Session 7: rendering: Shear-image order ray casting volume rendering**

Yin Wu, Vishal Bhatia, Hugh Lauer, Larry Seiler

April 2003 **Proceedings of the 2003 symposium on Interactive 3D graphics**

Full text available:  pdf(4.43 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

This paper describes shear-image order ray casting, a new method for volume rendering. This method renders sampled data in three dimensions with image quality equivalent to the best of ray-per-pixel volume rendering algorithms (full image order), while at the same time retaining computational complexity and spatial coherence near to that of the fastest known algorithm (shear-warp). In shear image order, as in shear-warp, the volume data set is resampled along slices parallel to a face of the volume ...

**Keywords:** base plane, image order, ray casting, shear warp, shear-image order, volume rendering

**195 Modelling urban environments: Modeling and visualizing the cultural heritage data set of Graz**

Christopher Zach, Andreas Klaus, Joachim Bauer, Konrad Karner, Markus Grabner

November 2001 **Proceedings of the 2001 conference on Virtual reality, archeology, and cultural heritage**

Full text available:  pdf(4.95 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

The inner city (Old Town) of Graz will be the European cultural capital in 2003. In this paper we present preliminary results on the reconstruction and visualization of this kind of cultural heritage data. Starting with a simple block model obtained by converting 2 1/2 dimensional GIS (geographic information system) data we focus on the image based modeling of the facades. Herein we illustrate a robust search for corresponding points to estimate the relative orientation between image pairs. Addit ...

**196 Octree-based decimation of marching cubes surfaces**

Raj Shekhar, Elias Fayyad, Roni Yagel, J. Fredrick Cornhill

October 1996 **Proceedings of the 7th conference on Visualization '96**

Full text available:  pdf(1.29 MB) 

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**197** [Wavelet radiosity](#)

Steven J. Gortler, Peter Schröder, Michael F. Cohen, Pat Hanrahan

September 1993 **Proceedings of the 20th annual conference on Computer graphics and interactive techniques**

Full text available:  [pdf\(894.85 KB\)](#)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

**Keywords:** global illumination, hierarchical radiosity, wavelets

**198** [An efficient instantiation algorithm for simulating radiant energy transfer in plant models](#)

Cyril Soler, François X. Sillion, Frédéric Blaise, Philippe Deriche

April 2003 **ACM Transactions on Graphics (TOG)**, Volume 22 Issue 2

Full text available:  [pdf\(467.92 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

We describe a complete lighting simulation system tailored for the difficult case of vegetation scene. The algorithm is based on hierarchical instantiation for radiosity and precise phase function modeling. It allows efficient calculations both in terms of computation and memory resources. We provide an in-depth description and study of the instantiation-based radiosity technique and we address the problems related to generating and managing phase functions of plant structures, as needed by the ...

**Keywords:** Plant growth simulation, calibrated physiological simulation, instantiation, landscape simulation, lighting simulation, radiosity

**199** [Shadow volume reconstruction from depth maps](#)

Michael D. McCool

January 2000 **ACM Transactions on Graphics (TOG)**, Volume 19 Issue 1

Full text available:  [pdf\(385.75 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)


Current graphics hardware can be used to generate shadows using either the shadow volume or shadow map techniques. However, the shadow volume technique requires access to a representation of the scene as a polygonal model, and handling the near plane clip correctly and efficiently is difficult; conversely, accurate shadow maps require high-precision texture map data representations, but are not widely supported. We present a hybrid of the shadow map and shadow volume approach ...

**Keywords:** hardware accelerated image synthesis, illumination, image processing, shadows

**200** [3-subdivision](#)

Leif Kobbelt

July 2000 **Proceedings of the 27th annual conference on Computer graphics and interactive techniques**

Full text available:  [pdf\(1.36 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

A new stationary subdivision scheme is presented which performs slower topological refinement than the usual dyadic split operation. The number of triangles increases in every step by a factor of 3 instead of 4. Applying the subdivision operator twice causes a uniform refinement with tri-section of every original edge (hence the name  $\sqrt{3}$ -subdivision) while two dyadic splits would quad-sect every original edge. Besides ...

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## A skeletal-based solid editor

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Arpan Biswas , Vadim Shapiro, Approximate distance fields with non-vanishing gradients, Graphical Models, v.66 n.3, p.133-159, May 2004

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I. Computing Methodologies

↳ I.5 PATTERN RECOGNITION

↳ I.5.1 Models

↳ **Subjects:** Structural

### Additional Classification:

I. Computing Methodologies

↳ I.3 COMPUTER GRAPHICS

↳ I.3.5 Computational Geometry and Object Modeling

↳ **Subjects:** Curve, surface, solid, and object representations; Modeling packages

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